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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 12/8/2009 has been entered. No claims have been added, amended, or cancelled. Accordingly, claims 16-27 are pending in this office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16, 17, 19-27 rejected under 35 U.S.C. 103(a) as being unpatentable over US 5903893 (hereinafter Kleewein) in view of US 5615367 (hereinafter Bennett).

As for claim 1 Kleewein discloses:

One or more databases present on a network (See column 2 lines 55-60 and column 3 lines 35-45); One or more first servers that search that databases for real data in the plurality of tables (See column 3 lines 39-41);

table extraction means for extracting columns from one table of the plurality of tables that store data to be retrieved from the plurality of tables (See figure 1 “if in command causes extraction then the processor of the computer is the extraction means also see column 4 lines 36-38 “In” predicate extracting for merge/join); column exclusion means for excluding columns from other tables of the plurality of tables which store the same data to be retrieved by said table extraction from columns to be extracted in subsequent processing (See column 4 lines 36-39 In procedure excludes all data that is not in the query and column 5 lines 10-25 and 45-57).).

While Kleewein does not disclose: a second server containing metadata that pertains to the real data in the one or more databases table joining means for creating a virtual table by joining the columns that store data extracted by said table extraction without being excluded by said column exclusion means when the processing of said table extraction means and the processing of said column exclusion means have been repeated till all the columns including data to be retrieved are analyzed; wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of tile second server.

Bennett however does disclose a second server containing metadata that pertains to the real data in the one or more databases (See column 7 lines 1-7 note: metadata is just data about data) table joining means for creating a virtual table by joining the columns that store data extracted by said table extraction without being excluded by said column exclusion means (See column 9 lines 10-20 discloses the column information and column 14 lines 15-20 noting that foreign keys or columns in common are used to link the tables) when the processing of said table extraction means and the processing of said column exclusion means have been repeated till all the columns including data to be retrieved are analyzed (See column 14 lines 39-47); wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of tile second server (See column 19 lines 50-57 when the system has a one to many relationship any of the many can go down). It would have been obvious to an artisan of ordinary skill in the pertinent at the time the invention was made to have incorporated the teaching of Bennett into the system of Kleewein. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Bennett's teaching would enable user's

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of the Kleewein system to have a simple intuitive method of combining tables (See Bennett column 3 lines 41-47).

As for claim 17, the rejection of claim 16 is incorporated, and further Kleewein discloses: wherein said table extraction means extracts one table including a largest number of columns which store data to be retrieved from the plurality of tables (See column 5 lines 40-45).

As for claim 19 the rejection of claim 16 is incorporated and further Bennett discloses retrieval means for retrieving objects in accordance with a retrieval key (See column 10 lines 1-10), and wherein data is retrieved from the virtual table created by joining the tables which are extracted in turn and joined by said table extraction means (See column 10 lines 15-20).

As for claim 20 Kleewein discloses: repeating processing that extracts a table and excludes columns that include identical data from a previous search(See column 4 lines 36-39 In procedure excludes all data that is not in the query) and joining one or more tables of the one or more databases extracted in turn (column 4 lines 36-38 "In" predicate extracting for merge/join). Kleewein does not disclose: creating a virtual table by joining columns that store data to be retrieved of a plurality of tables using a relational database in such a manner that one table including columns that store data to be retrieved is extracted from the plurality of tables in one or more databases, columns

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on other tables which store the same data contents as data contents of columns on the extracted table are excluded, and another table is extracted from the remaining tables, wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server.

Bennett however does disclose: creating a virtual table by joining columns that store data to be retrieved of a plurality of tables using a relational database in such a manner that one table including columns that store data to be retrieved is extracted from the plurality of tables in one or more databases (See column 9 lines 10-20 discloses the column information and column 14 lines 15-20 noting that foreign keys or columns in common are used to link the tables), columns on other tables which store the same data contents as data contents of columns on the extracted table are excluded, and another table is extracted from the remaining tables (See column 10 lines 59-67 noting secondary indexes); wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server (See column 19 lines 50-57 when the system has a one to many relationship any of the many can go down). It would have been obvious to an artisan of ordinary skill in the pertinent art at the time the invention was made to have incorporated the teaching of Bennett into the system of Kleewein. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan,

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during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Bennett's teaching would enable user's of the Kleewein system to have a simple intuitive method of combining tables (See Bennett column 3 lines 41-47).

As for claim 21, the rejection of claim 20 is incorporated, and further Kleewein discloses: wherein upon exceeding one table from the plurality of tables, one table including a largest number of columns that store data to be retrieved is extracted (See column 5 lines 40-45).

As for claim 22, the rejection of claim 20 is incorporated, and further Kleewein discloses: wherein data is retrieved from the virtual table created by joining the plurality of tables (See column 4 lines 55- 59).

As for claim 23 Kleewein discloses: extracting one table including a largest number of columns that store data to be retrieved from a plurality of tables in one of" more databases present on a network upon search by joining a plurality of tables by a relational database(column 4 lines 36-38 "In" predicate extracting for merge/join). Kleewein does not disclose: excluding columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing; and creating a virtual table by joining the tables extracted in turn without being excluded by said excluding columns said two processing

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of extracting and excluding have been repeated until all the columns including data to be retrieved are analyzed. wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server. Bennett however does disclose: excluding columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing (See column 9 lines 10-20 discloses the column information and column 14 lines 15-20 noting that foreign keys or columns in common are used to link the tables); and creating a virtual table by joining the tables extracted in turn without being excluded by said excluding columns said two processing of extracting and excluding have been repeated until all the columns including data to be retrieved are analyzed (See column 14 lines 39-47). wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server (See column 19 lines 50-57 when the system has a one to many relationship any of the many can go down). It would have been obvious to an artisan of ordinary skill in the pertinent art at the time the invention was made to have incorporated the teaching of Bennett into the system of Kleewein. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made.

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Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Bennett's teaching would enable user's of the Klewein system to have a simple intuitive method of combining tables (See Bennett column 3 lines 41-47).

As for claim 24 the rejection of claim 23 is incorporated and Bennett further discloses: wherein said program makes the computer further implement the function of retrieving objects in accordance with a retrieval key (See column 10 lines 1-10), from the virtual table created from the tables extracted and joined by said table extraction means (See column 10 lines 15-20).

As for claim 25 Klewein discloses: means for extracting columnar data from the one or more databases (See figure 1 "if in command causes extraction then the processor of the computer is the extraction means also see column 4 lines 36-38 "In" predicate extracting for merge/join); Klewein does not disclose: means for creating a virtual table by analyzing and joining specified columnar data from one or more databases; and means for excluding any duplicative columnar data in the plural distributed databases from the virtual table wherein even when the one or more databases and first servers that manage these databases are present, all metadata that match a retrieval request can be extracted by a search of a second server. Bennett however does disclose: means for creating a virtual table by analyzing and joining specified columnar data from one or more databases (See column 9 lines 10-20 discloses the column information and column 14 lines 15-20 noting that foreign keys or

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columns in common are used to link the tables); and means for excluding any duplicative columnar data in the plural distributed databases from the virtual table wherein even when the one or more databases and first servers that manage these databases are present (See column 14 lines 29-37), all metadata that match a retrieval request can be extracted by a search of a second server (See column 19 lines 50-57 when the system has a one to many relationship any of the many can go down). It would have been obvious to an artisan of ordinary skill in the pertinent art at the time the invention was made to have incorporated the teaching of Bennett into the system of Kleewein. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Bennett's teaching would enable user's of the Kleewein system to have a simple intuitive method of combining tables (See Bennett column 3 lines 41-47).

As for claim 26 the rejection of claim 25 is incorporated and further Bennett discloses: wherein the means for extracting functions until all columnar data in the plural distributed databases has been analyzed (See column 14 lines 39-47);.

As for claim 27 Kleewein discloses: extracting a first table including columns that store data to be retrieved from the plurality of tables (See column 4 lines 25-27, lines 30-45, lines 55-57), extracting a second table including columns that also store data to be retrieved from the plurality of tables (See column 4 lines 25-27, lines 30-45, lines 55-57)

Kleewein does not disclose: creating a virtual table by joining columns of the first second and third extracted tables excluding, from the created virtual table columns of the second extracted table which duplicates data contents of the first extracted table excluding from the created virtual table, columns of the third extracted table which duplicates data contents of either the first or second extracted table ; searching the virtual table for desired data; wherein even when the one or more databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server

Bennett however does explicitly disclose creating a virtual table by joining columns of the first second and third extracted tables (See column 9 lines 10-20 discloses the column information and column 14 lines 15-20 noting that foreign keys or columns in common are used to link the tables), excluding, from the created virtual table columns of the second extracted table which duplicates data contents of the first extracted table (See column 10 lines 65-68) excluding from the created virtual table, columns of the third extracted table which duplicates data contents of either the first or second extracted table (See column 11 lines 5-15); searching the virtual table for desired data (See column 10 lines 38-41). Wherein even when the one or more

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databases and first servers that manage these databases are present on the network, all metadata that match a retrieval request can be extracted by a search of a second server (See column 19 lines 50-57 when the system has a one to many relationship any of the many can go down). It would have been obvious to an artisan of ordinary skill in the pertinent art at the time the invention was made to have incorporated the teaching of Bennett into the system of Kleewein. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Bennett's teaching would enable user's of the Kleewein system to have a simple intuitive method of combining tables (See Bennett column 3 lines 41-47).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kleewein and Bennett as applied to claim 16 above, and further in view of US 5937 409 (hereinafter Wetherbee).

As for claim 18, the rejection of claim 16 is incorporated, and further Kleewein discloses: joining of the plurality of tables (See column 6 lines 45-48 “merge join feature”) and extracting tables (See column 4 lines 35-40). Kleewein differs from the claimed invention in that metadata management means for collecting and managing metadata which pertain to joining of the plurality of tables, and wherein said table extraction means extracts the table on the basis of the metadata stored in said metadata management means are not explicitly indicated. Wetherbee however, discloses a metadata management means for collecting and managing metadata (See column 4 lines 60-64 “relational mapper = metadata management means), and

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metadata stored in said metadata management means (See column 5 lines 2-5). It would have been obvious to an artisan of ordinary skill in the pertinent art at the time the invention was made to have incorporated the teaching of Wetherbee into the system of Kleewein and Bennett. The modification would have been obvious because the two references are concerned with the solution to problem of data processing, therefore there is an implicit motivation to combine these references. In other words, the ordinary skilled artisan, during his/her quest for a solution to the cited problem, would look to the cited references at the time the invention was made. Consequently, the ordinary skilled artisan would have been motivated to combine the cited references since Wetherbee's teaching would enable user's of the Kleewein and Bennett system to more efficiently and effectively manage metadata (See Wetherbee column 2 lines 52-57).

Response to Arguments

Applicant's arguments filed 12/8/09 have been fully considered but they are not persuasive.

Applicant argues:

Kleewein discloses performing a merge-join procedure "to access data from a remotely stored table "(Column 4, lines 32-33.) This merge-join procedure uses either an "in" predicate or a "BETWEEN" predicate in an SQL statement issued to the remote table. (Column 4, lines 34-37.) The IN predicate retrieves data matching the query from the remote table, while the BETWEEN predicate retrieves data within a search range in a query. (Column 4, lines 37-49.) Even though both of these commands exclude the rest of the remote table, they are both inclusionary data retrieval commands. In other words, both predicates seek data matching the SQL query and only return data meeting the search criteria. In contrast, the column exclusion means of claim 16 does not return data matching the search criteria. Rather, the column exclusion means searches the remote table for data matching the search criteria, and when matching data is identified, the entire column that includes the matched data is excluded from the extraction process. Thus, where Kleewein discloses retrieving the matched data and performing the merge-join, the column exclusion means excludes the entire column including the matched data before the join procedure. For its part, Bennett does not teach or disclose any such column exclusion means. For this reason, the combination of Kleewein and Bennett does not establish a prima facie case of obviousness over claim 16.

Claim 20 was also rejected as obvious over Kleewein in view of Bennett. Claim 20 recites "repeating processing that extracts a table and excludes columns that include identical data from a previous search". Here, the exclusion process excludes an entire column if that column includes data that matches a previous search. As indicated above, Kleewein excludes data, even entire columns, only when that data does not match the search criteria, and includes the data that does match the search criteria. Bennett does not include any teachings or disclosure of this limitation. For these reasons, the combination of Kleewein and Bennett does not establish a prima facie case of obviousness over claim 20.

Claim 27 was also rejected as obvious over Kleewein in view of Bennett. Claim 27 recites "excluding, from the created virtual table, columns of the third extracted table which duplicates data contents of either the first or the second extracted table". As is discussed above, Kleewein discloses excluding non-matching data, and including only matching data, from other tables. Bennett does not teach or disclose this type of exclusion procedure. In contrast, claim 27 excludes entire columns that include matching data, meaning that only columns containing non-matching data are included in the join procedure. For these reasons, the combination of Kleewein and Bennett does not establish a prima facie case of obviousness over claim 27.

Examiner responds:

Examiner is not persuaded. Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification. Interpretation of Claims- Broadest Reasonable Interpretation: During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969). In this case the claim limitation in question reads "column exclusion means for excluding columns from other tables of the plurality of tables which store the same data to be retrieved by said table extraction from columns to be extracted in subsequent processing." This limitation means that the column exclusion means only excludes columns that store the same data when the column in question is going to be used in subsequent processing. Therefore if the column is not going to be used in subsequent processing then the same data requirement doesn't apply. Kleewein discloses an in predicate and a between predicate that specifies the rows to be extracted to the exclusion of all other rows. However the decision of which predicate to use is based on the tables themselves and their relation to whether they have been used or will subsequently be used (See column 5 lines 10-25 and 45-57).

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Applicant argues:

Claim 23 was also rejected as obvious over Kleewein in view of Bennett. Claim 23 recites "excluding columns on other tables which store the same data contents as data contents of the columns on the extracted table from columns to be extracted in subsequent processing". As is discussed above, Kleewein excludes non-matching data as opposed to excluding entire columns that include matching data, and Bennett does not include any such teachings or disclosure. For these reasons, the combination of Kleewein and Bennett does not establish a prima facie case of obviousness over claim

Examiner responds:

Examiner is not persuaded. Initially examiner notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover the "Test of obviousness is not whether features of secondary reference may be bodily incorporated into primary reference's structure, nor whether claimed invention is expressly suggested in any one or all of references; rather, test is what combined teachings of references would have suggested to those of ordinary skill in art." *In re Keller, Terry, and Davies*, 208 USPQ 871 (CCPA 1981).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEON HARPER whose telephone number is (571)272-0759. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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LJH
Leon J. Harper
February 11, 2010

/Hosain T Alam/
Supervisory Patent Examiner, Art Unit 2166